WE CLAIM:

1. A disk drive comprising:

(a) a disk surface, wherein:

the disk surface comprises a plurality of concentric, radially spaced tracks;

each track comprises a plurality of data sectors and a plurality of servo sectors;

the plurality of servo sectors comprise a first index servo sector, a second index servo sector, and at least one non-index servo sector between the first and second index servo sectors;

a first index mark identifies the first index servo sector and a second index mark identifies the second index servo sector;

the first index mark is different than the second index mark;

(b) a head actuated over the disk surface; and

(c) a disk controller for:

maintaining a servo sector counter that identifies the circumferential location of the servo sectors;

detecting one of the first and second index marks; and

initializing the servo sector counter relative to which index mark is detected.

2. The disk drive as recited in claim 1, wherein:

(a) the disk controller detects a loss of synchronization to the servo sectors by detecting one of the first and second index marks at the wrong time; and

(b) re-initializes the servo sector counter if loss of synchronization is detected.

3. The disk drive as recited in claim 1, further comprising a first head actuated over a first disk surface and a second head actuated over a second disk surface, wherein the disk controller for:

(a) performing a head switch operation to switch from the first head as the active head to the second head as the active head; and

(b) detecting one of the first and second index marks recorded on the second disk surface after performing the head switch operation.

4. The disk drive as recited in claim 1, wherein each servo sector comprises an index mark field for storing a plurality of bits for recording one out of a group consisting of the first index mark, the second index mark, and a non-index mark.

5. The disk drive as recited in claim 1, wherein:

(a) a first plurality of servo sectors comprise information for identifying the first index mark; and

(b) a second plurality of servo sectors comprise information for identifying the second index mark.

6. The disk drive as recited in claim 5, wherein:

(a) the first plurality of servo sectors does not include the first index servo sector; and

(b) the second plurality of the servo sectors does not include the second index servo sector.

7. The disk drive as recited in claim 5, wherein:

(a) each of the first plurality of servo sectors comprise at least one bit of the first index mark; and

(b) each of the second plurality of the servo sectors comprise at least one bit of the second index mark.

8. The disk drive as recited in claim 7, wherein:

(a) each servo sector comprises a sync mark field for synchronizing to a servo data field, wherein the sync mark field stores one of a first and second sync mark;

(b) the first sync mark is different than the second sync mark;

(c) the sync mark field in each of the first plurality of servo sectors identifies one bit of the first index mark; and

(d) the sync mark field in each of the second plurality of the servo sectors identifies one bit of the second index mark.

9. The disk drive as recited in claim 7, wherein:

(a) the first and second index marks comprise a sequence of index bits that satisfy a run length limit (RLL) constraint; and

(b) a plurality of non-index servo sectors between the first and second index servo sectors comprise a sequence of non-index bits that violate the RLL constraint.

10. The disk drive as recited in claim 1, wherein the first and second index marks are fault tolerant.

11. The disk drive as recited in claim 1, wherein the first and second index marks comprise redundancy bits for distinguishing between the first and second index marks.

12. A method of operating disk drive, the disk drive comprises a disk surface having a plurality of concentric, radially spaced tracks, wherein each track comprises a plurality of data sectors and a plurality of servo sectors, the plurality of servo sectors comprise a first index servo sector, a second index servo sector, and at least one non-index servo sector between the first and second index servo sectors, a first index mark identifies the first index servo sector and a second index mark identifies the second index servo sector, and the first index mark is different than the second index mark, the method comprises the steps of:

(a) maintaining a servo sector counter that identifies the circumferential location of the servo sectors;

(b) detecting one of the first and second index marks; and

(c) initializing the servo sector counter relative to which index mark is detected.

13. The method as recited in claim 12, further comprising the steps of:

(a) detecting a loss of synchronization to the servo sectors by detecting one of the first and second index marks at the wrong time; and

(b) re-initializing the servo sector counter if loss of synchronization is detected.

14. The method as recited in claim 12, wherein the disk drive further comprising a first head actuated over a first disk surface and a second head actuated over a second disk surface, further comprising the steps of:

(a) performing a head switch operation to switch from the first head as the active head to the second head as the active head; and

(b) detecting one of the first and second index marks recorded on the second disk surface after performing the head switch operation.

15. The method as recited in claim 12, wherein each servo sector comprises an index mark field for storing a plurality of bits for recording one out of a group consisting of the first

index mark, the second index mark, and a non-index mark.

16. The method as recited in claim 12, wherein:

(a) a first plurality of servo sectors comprise information for identifying the first index mark; and

(b) a second plurality of servo sectors comprise information for identifying the second index mark.

17. The method as recited in claim 16, wherein:

(a) the first plurality of servo sectors does not include the first index servo sector; and

(b) the second plurality of the servo sectors does not include the second index servo sector.

18. The method as recited in claim 16, wherein:

(a) each of the first plurality of servo sectors comprise at least one bit of the first index mark; and

(b) each of the second plurality of the servo sectors comprise at least one bit of the second index mark.

19. The method as recited in claim 18, wherein:

(a) each servo sector comprises a sync mark field for synchronizing to a servo data field, wherein the sync mark field stores one of a first and second sync mark;

(b) the first sync mark is different than the second sync mark;

(c) the sync mark field in each of the first plurality of servo sectors identifies one bit of the first index mark; and

(d) the sync mark field in each of the second plurality of the servo sectors identifies one bit of the second index mark.

20. The method as recited in claim 18, wherein:

(a) the first and second index marks comprise a sequence of index bits that satisfy a run length limit (RLL) constraint; and

(b) a plurality of non-index servo sectors between the first and second index servo sectors comprise a sequence of non-index bits that violate the RLL constraint.

21. The method as recited in claim 12, wherein the first and second index marks are fault tolerant.

22. The method as recited in claim 12, wherein the first and second index marks comprise redundancy bits for distinguishing between the first and second index marks.